Redescription and Phylogenetic Affinities of *Kytorhinus prolixus* (Fall)

(Coleoptera: Bruchidae: Kytorhininae)

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Kytorhinus prolixus (Fall) was described in 1926 and to this date it is the only species in the subfamily Kytorhininae known to occur in the New World (Decelle, 1971). There are about 15 species of Kytorhinines in the Old World, the subfamily having a Holarctic distribution. This is an aberrant group of Bruchidae, not only in morphology but in its northern distribution. Most species of bruchids occur in the tropical and semitropical areas of the world.

Only Luk'yanovich and Ter-Minasyan (1957) and Decelle (1971) have dealt in any detail with *Kytorhinus* since Bridwell (1932) placed *prolixus* in *Kytorhinus* and named the subfamily Kytorhininae. Luk' yanovich and Ter-Minasyan provided a key to 8 species and Decelle reviewed the literature on *Kytorhinus* and described 3 new species.

Because *K. prolixus* has never been completely redescribed, had its distribution delimited, or had its host range discussed, these subjects are presented here. Hopefully this will stimulate further studies on the taxonomy, ecology, and behavior of *Kytorhinus*.

Kytorhinus prolixus (Fall)

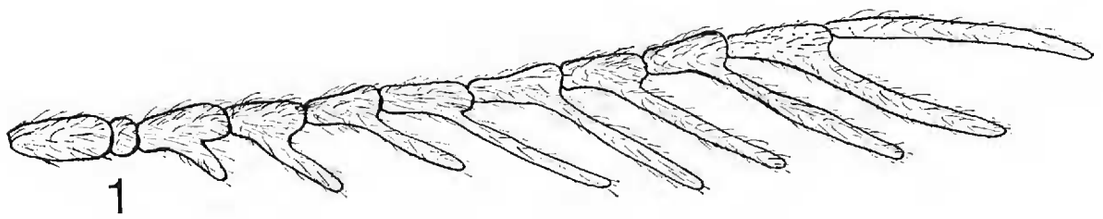
(Figs. 1–8)

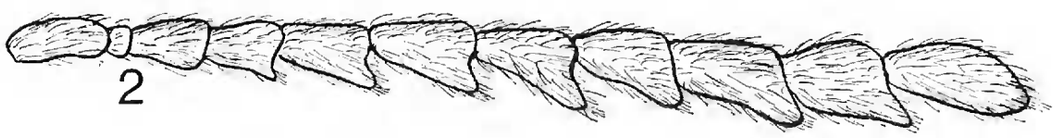
Mylabris (Bruchus) prolixus Fall, 1926:204 (near McKinley Park Station, Alaska). *Kytorhinus prolixus*: Bridwell, 1932:101; Bridwell, 1946:53; Blackwelder and Blackwelder, 1948:45; Brown, 1952:342; Bottimer, 1961:293; Johnson, 1968:1269; Bottimer, 1968:1036, 1039; Decelle, 1971:106.
Kytorrhinus (sic) prolixus: Teran, 1967:307, 311, 319, 335.

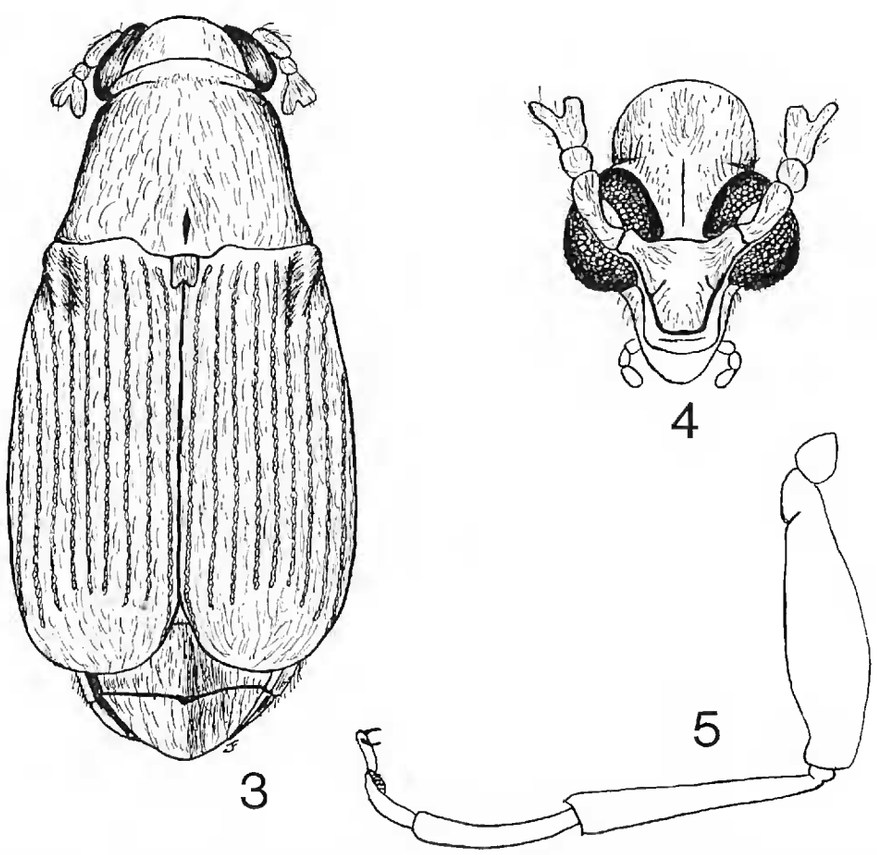
Length (pronotum–elytra) 1.9–2.7 mm. Width 1.0–1.4 mm. Maximum thoracic depth 0.9–1.4 mm.

Male.—Head and body dark brown to black, antennae and legs brown to black; body slender, elongate with recumbent, uniform sparse white hairs; sometimes with scattered golden brown hairs; scutellum with short, dense white hairs.

Head.—(fig. 4). Short, narrow, densely punctulate; frons usually with a thin line extending from frontoclypeal suture to vertex; head usually with bulge between dorsal margins of eyes followed by a vague transverse sulcus between upper limits of eyes; eye large, rounded, 2.2 to 3.5 times as wide as frons; ocular sinus long, dividing dorsal surface of eye for about 0.8 its length; posterior margin of eye protruding from adjacent surfaces; postocular lobe broader near dorsum of eye,

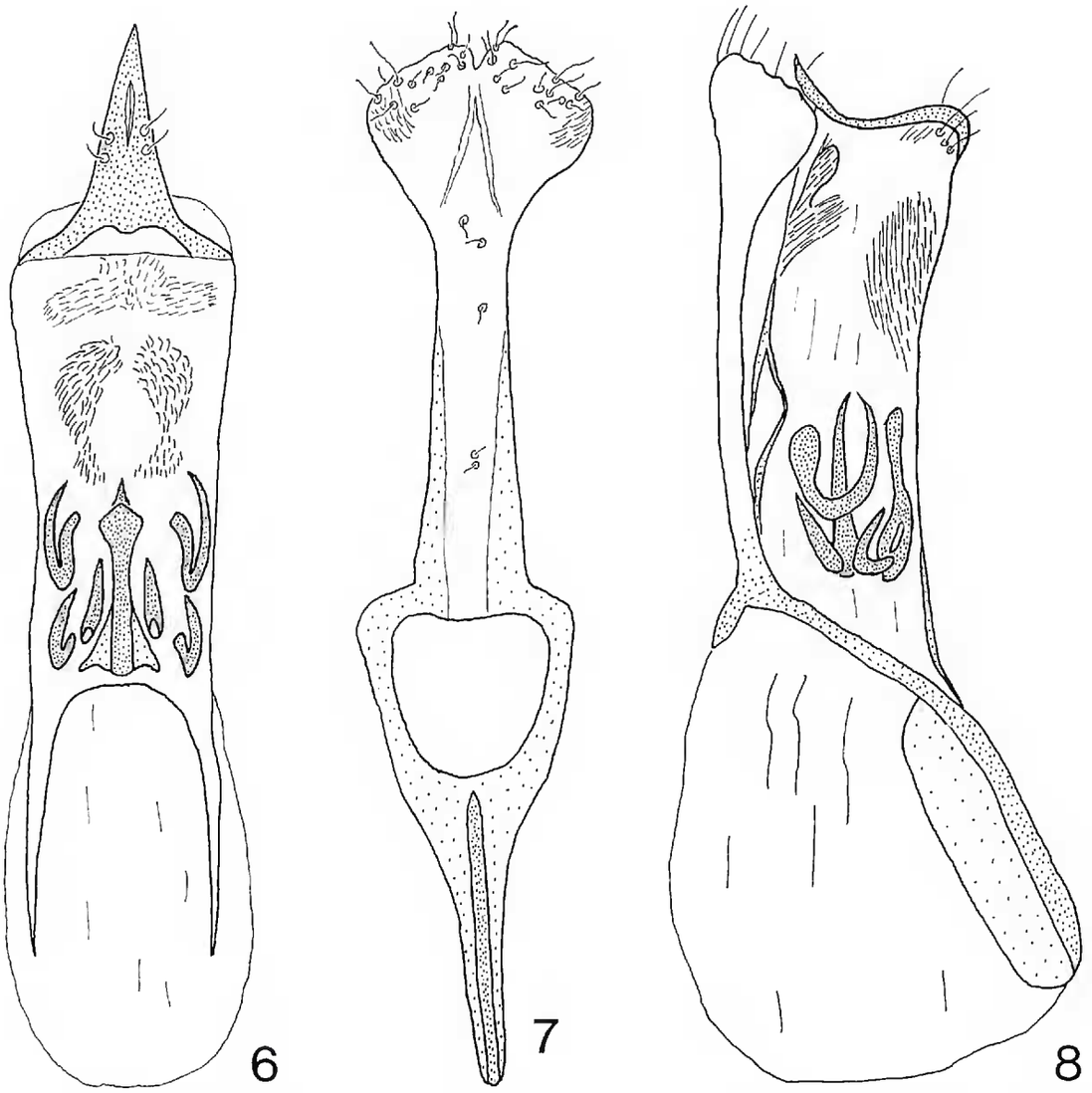






FIGS. 1–5. *Kytorhinus prolixus*. 1. Antenna of male. 2. Antenna of female. 3. Dorsal aspect. 4. Head. 5. Hind leg.

tapering toward venter, rounded, not angulate; muzzle short, distance from venter of eye to apex of labrum ⅓ to ⅕ as long as distance from upper limits of eyes to apex of labrum; clypeus with large, shallow depression, lateral margins with carinae extending from apex of clypeus to base of antennae; antennal segment 1 about 0.9 as long as length of eye, segment 2 short, about 0.2 as long as segment 1, segments 3–10 pectinate, segment 11 slender, about as long as ramus of segment



FIGS. 6–8. *Kytorhinus prolixus* male genitalia. 6. Median lobe, ventral view. 7. Lateral lobes, ventral view. 8. Median lobe and lateral lobes, lateral view.

10; ramus of segment 3 about 0.5 as long as segment, ramus of segment 4 about 1.5 times as long as segment, rami of segments 5–10 about twice as long as segments, rami longest on segments 6–10 (fig. 1); antenna long, reaching to slightly beyond apex of abdomen.

Prothorax.—Disk subcampanulate (fig. 3), with many punctations in no apparent pattern; cervical sulcus deep, extending from near coxal cavity almost to midline of pronotum; lateral prothoracic carina evident only at base, often with blunt ridge extending to coxal cavity; short median impressed line on median basal lobe; prosternum separating procoxae for about 0.5 their length.

Mesothorax and Metathorax.—Scutellum elongate, almost 2 times longer than broad, bifid at apex, clothed with dense recumbent white hairs; elytron almost 3 times longer than broad; striae shallow, punctulate, strial intervals rugulose; striae 3 and 4 closer to one another at base than to adjacent striae, others subequal at base; humerus rugulose, swollen, extending obliquely toward midline, terminating between striae 6 and 7, sometimes with small, round pit near center,

glabrous; undersurfaces punctate; about 0.5 of lateral portion of hind coxa punctate, medial 0.5 smooth, without punctations; hind femur long, narrow, constricted basally and apically, expanded only slightly medially to about 0.8 width of coxa (fig. 5); vague longitudinal carina on inner ventral margin, femur otherwise unmarked; femur extending to beyond apex of abdomen; tibia unmarked, single short, broad flat spine at lateroventral margin of apex, without mucro; 1st tarsomere with only ventral glabrous carina.

Abdomen.—1st sternum about 0.3 as long as abdomen, posterior margin straight, sterna 2–4 unmodified, 5th emarginate to receive apex of pygidium, produced ventrally at apex; pygidium small, punctate, convex in lateral view; exposed tergite unmarked.

Genitalia.—(Figs. 6–8). Median lobe moderate in length, tubular, slightly flattened, without dorsal hood at apex; ventral valve elongate, pointed, sides concave, base about 0.5 as wide as apex of median lobe, arcuate and perpendicular to median lobe in lateral view; without hinge sclerites; armature of internal sac consisting of 2 pairs of clumps of spinules basally, 1 dorsal, 1 ventral, and a clump of large, heavily sclerotized structures medially, medial cluster composed of 2 pairs of curved, pointed structures laterally, a pair of elongated spines slightly medial to curved structures, and 2 elongated structures along midline, dorsal structure slightly curved, pointed, ventral structure flattened dorsoventrally at both base and apex. Lateral lobes expanded at apex, gradually constricted to about 0.3 from apex, only slightly cleft at apex (fig. 7). (See also Teran, 1967, p. 311).

FEMALE.—Similar to male except eyes smaller, about 1.4 times as wide as width of frons; antennal segment 1 (fig. 2) about as long as length of eye, segment 2 about 0.3 as long as 1, segments 3–10 serrate, 11 acuminate at apex; antenna extending to about 0.66 the length of elytron; abdominal sternum 1 about 0.3 as long as abdomen, segments 2–5 unmodified, 5 gently rounded, not emarginate; abdomen longer, extending well beyond apex of hind femur; not bent downward at apex.

Host Plants.—Unknown.

Types.—Museum of Comparative Zoology, Harvard University. The male specimen bearing the following labels is here designated Lectotype for this species: "McKin. Pk. Alaska, 7-10-24, TYPE prolixus, M. C. Z. Type 25059, LECTOTYPE, Mylabris (Bruchus) prolixus Fall By C. D. Johnson 1976." Three female specimens bearing the labels "McKin. Pk. Alaska, 7-9-24" which make up the remainder of the type-scries of Fall are paralectotypes.

Specimens examined.—104, from the following localities, all June, July: *Manitoba.* 30 miles N. Roblin. *Saskatchewan.* Lake Madge. *Alberta.* McMurray, on *Hedysarum americanum*; Drumheiler; Grande Prairie; Elkwater Park; Kananaskis; Calgary; Pt. Saskatchewan; Cypress Hills; Edmonton. *British Columbia.* Atlin; Pouce Coupe; Summit Lake, mi 392 Alaska Hwy., 4700′. *Northwest Territories.* Reindeer Depot; Mackenzie Delta, on *Hedysarum alpinum americanum*; Aklavik; Norman Wells; Wrigley. *Yukon Territory.* Ross River, 132°30′, 61°56′, 3000′. *Alaska.* Ft. Wainwright; near McKinley Park Station.

Distribution.—South Dakota. Manitoba. Saskatchewan. Alberta. British Columbia. Northwest Territories. Yukon Territory. Alaska.

Discussion.—Fall (1926) described this unique species from a series of 4 specimens that he collected near McKinley Park Station, Alaska.

Since that time it has been found to occur also in western and central Canada and South Dakota. Intensive collecting will probably show that it has a wider distribution in the United States because L. J. Bottimer found an egg that is probably *prolixus* on a pod of *Hedysarum* from Idaho in a herbarium.

About 16 species of Kytorhininae and its only genus *Kytorhinus* have been described. All species whose hosts are known feed in the Leguminosae. The Old World species *K. pectinicornis* Melichar feeds in the seeds of *Hedysarum* and, according to published descriptions, closely resembles *K. prolixus*.

Apparently *Kytorhinus* had an Old World Origin because it is most abundant there. The present distribution of *prolixus* does not suggest a recent introduction into the New World.

In this paper the external morphology and male genitalia have been described for *K. prolixus*. Not only will this allow easier identification of the species but will allow other workers to more easily compare *prolixus* with Old World species. The subfamily characters listed by Bridwell (1946) separate *K. prolixus* from all other New World Bruchidae.

The male genitalia of *K. prolixus* were figured by Teran (1967) and are also figured here. The shape of the median lobe and ventral valve resemble some New World Bruchinae but the lateral lobes and armature of the internal sac are unique. The mass of elongated, curved structures in the internal sac more closely resembles members of the Amblycerinae.

Although *K. prolixus* has yet to be reared from the seeds of a host, it has been collected by sweeping on numerous occasions from species of *Hedysarum* (Leguminosae), its probable host. Dr. A. G. Raske collected seeds of *Hedysarum* sp. from Calgary, Alberta, Canada, in September 1969 but no bruchids were reared from these seeds. I collected seeds of *Hedysarum boreale* Nuttall, our rare Arizona boreal species, from 4 miles NE Lukachukai, Chuska Mountains, Apache County on 28 July 1975. There is no evidence of bruchid eggs or exit holes and to this date no bruchids have emerged from these seeds. The plants were also thoroughly swept and no bruchids were collected from them. In addition, I have examined several herbarium specimens of *H. boreale* from other localities in Arizona and I have found no bruchid eggs or damage. Apparently, then, *K. prolixus* does not occur as far south as Arizona.

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